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Lawrence P Kessler
Eastman Kodak Company
Patent Legal Staff
Rochester, NY 14650-2201

EXAMINER	
THOMPSON, JAMES A	

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/629,993	TAI ET AL.	
	Examiner	Art Unit	
	James A Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 May 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "18b" and "20b" in figure 5; "910", "920", "930", "950" and "960 in figure 9; and "247" in figure 24. Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6 and 9-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Crean (US Patent 5,745,249). Claim 10 further limits the method of claim 1. Claim 16 further limits the system of claim 15. Since both claims contain essentially the same subject matter, said claims will be discussed together.

Regarding claim 1: Crean discloses an image processing method for generating an output gray level rendered pixel value (column 4, lines 12-20 of Crean). Said method comprises the step of providing a digitized image that has a plurality of pixels (column 4, lines 30-34 of Crean) with each of the pixels being rendered into a halftoned microdot having a density (column 5, lines 9-12 of Crean), the microdot existing within one of a plurality of halftoning planes (column 6, lines 9-21 of Crean), wherein the halftoning planes are indicative of an intensity value for the pixels (column 4, lines 12-20 of Crean).

Said method further comprises the step of forming a plurality of tiles from the microdots (figure 1 and column 4, lines 61-64 of Crean) in accordance with a screen angle (column 4, lines 62-64 of Crean) and a line ruling from a halftone screen (column 5, lines 16-22 of Crean) used to convert the pixels into the microdots (column 5, lines 23-27 of Crean), wherein each of the tiles comprises a repetitive sequence of microdots (column 6, lines 28-35 of Crean).

Said method further comprises the step of associating each of the microdots within the tiles by a coordinate position as well as the density value (column 5, lines 9-16 of Crean).

Said method further comprises the step of storing the tiles into a buffer having a length and a width (figure 11 and column 10, lines 5-12 of Crean). The address of the data in the buffer is based on both the row number and column number of each dot.

Said method further comprises the step of placing into the buffer an offset determined by the tile geometry, wherein the offset acts as a pointer to read data out offset by a predetermined amount in order to generate the repetitive sequence of microdots (column 6, lines 31-35 of Crean).

Said method further comprises the step of reading the buffer to retrieve stored image data comprising density value (column 7, lines 37-46 of Crean).

Regarding claim 2: Crean discloses that the density value for a pixel is a stored value that characterizes the value of the microdots in the halftone plane (column 7, lines 7-16 of Crean).

Regarding claim 3: Crean discloses using a brick based on the range of the continuous tone level in a region (column 5, lines 5-8 of Crean). This performs the same essential function as using an average density value for the tile since there is generally a wide range of pixel values in a real image. Using a range of tone levels or an average density value will both allow a determination whether or not to use a brick for a certain image or portion of an image.

Regarding claim 4: Crean discloses that the density value is a stored value within the buffer, the density value being an output from the halftone plane (column 7, lines 7-16 of Crean). The density value is an output from the halftone plane since it is

based on the thresholding operations (column 7, lines 10-12). The density value is stored in the memory buffer (column 7, lines 11-16 of Crean).

Regarding claim 5: Crean discloses that the halftone plane is an input halftone plane that functions as an address to the buffer (column 7, lines 17-22 of Crean), the buffer data addressed being the density value that is an output halftone plane that is represented by a different number of bits than the input halftone plane (figure 10 and column 9, lines 1-22 of Crean). Crean teaches the option of performing image enhancement to eliminate stair-casing effects on the edges of characters and line art. Said enhancement requires an increase in the number of bits used.

Regarding claim 6: Crean discloses that the halftone plane is an input halftone plane that functions as an address to the buffer (column 7, lines 17-22 of Crean), the buffer data addressed being the density value that is an output halftone plane that is represented by the same number of bits as the input halftone plane (column 7, lines 44-48 of Crean). Image data is sent to the memory buffer and later output at the same rate by the output device. Resolution enhancement may be performed on the output data (column 9, lines 1-7 of Crean), but is not an essential operation and may be omitted if circumstances allow or require.

Regarding claim 9: Crean discloses forming tiles of halftone threshold values that are repeated throughout the image, offset at each column (figure 1 and column 4, lines 61-64 of Crean). A brick as defined by Crean is essentially a tile that contains a sequence of halftone threshold values for pixels (column 5, lines 1-8 of Crean). In order to determine the coordinate relative to the tile sequence in the X-direction (denoted by

I), the image pixel address for both the row and the column (figure 1(20,L,P) and column 5, lines 9-12 of Crean), the overall width of the tile (figure 1(20,L) and column 4, line 62 of Crean), and the offset of the tile (figure 1(20,S) and column 4, lines 63-64 of Crean) must be considered. For a single tile at the origin, the pixel address relative to the overall image in the x-direction would be given by X. The output device scans in the X-direction, reaches the end, and returns to the beginning to resume scanning for each line (column 5, lines 12-19 of Crean). Therefore, for a tile that has a height in the Y-direction of 1, a width of Bw (L in Crean) and an offset of Bs (S in Crean) (column 5, lines 16-22 of Crean), the coordinate value I would inherently be determined according to a calculation wherein I = (X+Y*Bs)%Bw, where % denotes the remainder of the division operation that is retained as the coordinate value.

Regarding claims 10 and 16: Crean discloses forming bricks of halftone threshold values that are repeated throughout the image, offset at each column (figure 1 and column 4, lines 61-64 of Crean). In order to determine the coordinate relative to the tile sequence in the X-direction (denoted by I), the image pixel address for both the row and the column (figure 1(20,L,P) and column 5, lines 9-12 of Crean), the overall width of the brick (figure 1(20,L) and column 4, line 62 of Crean), and the offset of the brick (figure 1(20,S) and column 4, lines 63-64 of Crean) must be considered. For a single brick at the origin, which contains a block of a sequence of pixels (column 5, lines 1-8 of Crean), the pixel address relative to the overall image in the x-direction would be given by X. The output device scans in the X-direction, reaches the end, and returns to the beginning to resume scanning for each line (column 5, lines 12-19 of Crean).

Therefore, for a brick that has a height in the Y-direction of 1, a width of Bw (L in Crean) and an offset of Bs (S in Crean) (column 5, lines 16-22 of Crean), the coordinate value I would inherently be determined according to a calculation wherein I = (X+Y*Bs)%Bw, where % denotes the remainder of the division operation that is retained as the coordinate value.

Regarding claim 11: Crean discloses forming bricks of halftone threshold values that are repeated throughout the image, offset at each column (figure 1 and column 4, lines 61-64 of Crean). In order to determine the coordinate relative to the tile sequence in the X-direction (denoted by I), the image pixel address for both the row and the column (figure 1(20,L,P) and column 5, lines 9-12 of Crean), the overall width of the brick (figure 1(20,L) and column 4, line 62 of Crean), and the offset of the brick (figure 1(20,S) and column 4, lines 63-64 of Crean) must be considered. For a single brick at the origin, which contains a block of a sequence of pixels (column 5, lines 1-8 of Crean), the pixel address relative to the overall image in the x-direction would be given by X. The output device scans in the X-direction, reaches the end, and returns to the beginning to resume scanning for each line (column 5, lines 12-19 of Crean). Therefore, for a brick that has a height in the Y-direction of Bh (P in Crean), a width of Bw (L in Crean) and an offset of Bs (S in Crean) (column 5, lines 16-22 of Crean), the coordinate value I would inherently be determined according to a calculation wherein I = (X+(Y/Bh)*Bs)%Bw, where % denotes the remainder of the division operation that is retained as the coordinate value.

Regarding claim 12: Crean discloses a brick that has a height, which can be denoted by Bh (P in Crean) (figure 1 of Crean). For a plurality of bricks, the coordinate relative to the brick that is in the Y-direction, denoted by J, can be given based on the coordinate relative to the overall image that is in the Y-direction. Therefore, J would inherently be determined according to a calculation wherein J = Y%Bh, where % denotes the remainder of the division operation that is retained as the coordinate value.

Regarding claim 13: Crean discloses the step of blending rendered values from the halftoning process via at least one additional halftoning process (figure 10 and column 9, lines 42-55 of Crean). Image enhancement and visual smoothing can be performed for halftoning the data.

Regarding claim 14: Crean discloses the step of edge enhancement processing (column 9, lines 43-46 of Crean). Edges can be smoothed by means of resolution enhancement (column 9, lines 23-48 of Crean).

Regarding claim 15: Crean discloses an image processing system for generating output gray level pixel values (figure 4; and column 5, lines 23-29 of Crean). Said system comprises a lookup table storing output gray level pixel values (column 5, lines 38-41 of Crean) representing rendered values of a halftoning process into one of a plurality of halftoning planes (column 6, lines 9-21 of Crean).

Said system further comprises an input to the lookup table providing a coordinate value of a current pixel to be rendered and a gray level input image pixel to be rendered (column 5, lines 9-16 of Crean).

Regarding claim 17: Crean discloses that the lookup table stores gray level values (column 5, lines 38-41 of Crean) rendered from a digitized image that has a plurality of pixels (column 4, lines 30-34 of Crean) with each of the pixels being converted into a halftoned microdot that exists within one of the plurality of halftoning planes (column 5, lines 9-12 and column 6, lines 9-21 of Crean), wherein the microdots within the halftoning planes are indicative of the density value of the pixels rendered (column 4, lines 12-20 of Crean).

Regarding claim 18: Crean discloses that the lookup table stores a plurality of tiles from the microdots (figure 1 and column 4, lines 61-64 of Crean) in accordance with a screen angle (column 4, lines 62-64 of Crean) and a line ruling from a halftone screen (column 5, lines 16-22 of Crean) used to convert the pixels into the microdots (column 5, lines 23-27 of Crean), wherein each of the tiles comprises a repetitive sequence of microdots (column 6, lines 28-35 of Crean).

Regarding claim 19: Crean discloses that each of the microdots within the tiles is associated by a coordinate position, a density value as well as the plane value (column 5, lines 9-16 of Crean). Each microdot is organized within a pixel based on the density value of said pixel (column 5, lines 23-27 of Crean). Said pixel is organized in the brick according to coordinate position (column 5, lines 9-11 of Crean). The density value essentially defines the plane value since each halftone threshold plane is used for comparison with an input density value (column 5, lines 23-27 of Crean).

Regarding claim 20: Crean discloses that the tiles stored within the lookup table buffer have a length and a width (figure 11 and column 10, lines 5-12 of Crean).

The address of the data in the buffer is based on both the row number and column number of each dot.

Regarding claim 21: Crean discloses that the lookup table also stores an offset determined by the tile geometry stored therein, wherein the offset acts as a pointer to read data out offset by a predetermined amount in order to generate the repetitive sequence of microdots (column 6, lines 31-35 of Crean).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crean (US Patent 5,745,249) in view of Tai (US Patent 5,200,831).

Regarding claim 7: Crean discloses that the buffer that stores halftone rendering values in accordance with a dot growth pattern (column 4, lines 61-64 and column 5, lines 23-34 of Crean). The buffer is a form of memory that can be described as a lookup table since a lookup table requires simple memory addresses and corresponding values.

Crean does not disclose expressly that said dot growth pattern is a mixed dot growth pattern.

Tai teaches using a mixed dot growth pattern (column 5, lines 10-14 of Tai).

Crean and Tai are combinable because they are from the same field of endeavor, namely image halftone processing and printing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a mixed dot growth pattern as the dot growth pattern. The motivation for doing so would have been to provide more smoothness, less graininess, and more image details (column 6, lines 15-17 of Tai). Therefore, it would have been obvious to combine Tai with Crean to obtain the invention as specified in claim 7.

Regarding claim 8: Crean discloses that the buffer further comprises a second lookup table and in the lookup table there are stored halftone rendering values (column 5, lines 9-12 of Crean). Said halftone rendering values are in accordance with a dot growth pattern (column 5, lines 23-27 of Crean). The halftone rendering values are a separate set of memory than the dot growth patterns (figure 7 and column 7, lines 37-40 of Crean). Therefore said values can be considered a second lookup table since a lookup table requires memory addresses and corresponding values. The pixel values are used as a least significant bits of the overall addressing scheme of the sequencer (column 7, lines 7-19 of Crean). Accessing these bits would give the device access to patterns based on a particular pixel value.

Crean does not disclose expressly that said dot growth pattern is a partial dot growth pattern.

Tai teaches using a partial dot growth pattern (column 5, lines 10-14 of Tai).

Crean and Tai are combinable because they are from the same field of endeavor, namely image halftone processing and printing. At the time of the invention,

it would have been obvious to a person of ordinary skill in the art to use a partial dot growth pattern as the dot growth pattern. The motivation for doing so would have been to carry more information detail (column 6, lines 6-8 of Tai). Therefore, it would have been obvious to combine Tai with Crean to obtain the invention as specified in claim 8.

Response to Arguments

6. Applicant's arguments, see page 12, lines 2-8, filed 19 May 2004, with respect to the drawings have been fully considered and are persuasive. The objections to the drawings cited in items 2-4 on pages 2-3 of the first office action, dated 16 January 2004, have been withdrawn. However, upon review of the replacement drawings, dated 19 May 2004, new grounds of objection have been made which are listed above in item 1 on page 2. Furthermore, the objection to the drawings cited in item 1 on page 2 of said first office action has not been addressed by the amendments to the drawings and the amendments to the specification.

7. Applicant's arguments, see page 12, line 9 to page 14, line 17, filed 19 May 2004 have been fully considered but they are not persuasive. Applicant attempts to demonstrate the difference between the disclosure in the specification of the present application and the disclosure in the specification of Crean (US Patent 5,745,249). Applicant does not address how the claims as stated patentably distinguish the present application over the cited prior art.

8. Applicant's arguments, see page 14, line 18 to page 16, line 21, filed 19 May 2004, have been fully considered but they are not persuasive. Applicant claims that the present invention is different because of the use of 256 layers for 8-bit grayscale data. However, as discussed in the arguments regarding claim 1 in item 3, on pages 3-4 of the present office action, Crean does use a plurality of layers, referred to in Crean as "levels" (column 6, lines 9-11 of Crean). The fact that the layers are not drawn in a diagram in the manner drawn in the application does not alter this fact. Furthermore, claim 1 does not specifically recite using 256 layers. Claim 1 recites "a plurality of halftoning planes". The claim limitation is still anticipated by Crean. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In establishing a grayscale pixel (column 4, lines 44-48 of Crean), thresholds are established for each dot of the pixel, such as shown in figures 2 and 3 of Crean. Despite Applicant's contention on page 15, lines 12-15 and elsewhere in Applicant's arguments dated 19 May 2004, Crean does, in fact, use gray level halftoning and not simple binary halftoning (column 4, lines 44-48 and column 6, lines 9-11 of Crean). Furthermore, claim 1 does not specifically recite a "3-D halftoning process" but instead recites "a plurality of halftone planes" which has been anticipated by Crean. The limitations of claim 1, as currently listed, are fully met by the cited prior art. For a more detailed discussion, Applicant is directed to the arguments regarding claim 1 above.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., blending operation of Applicant's invention as described with reference to FIG. 3 of this Application; blending two rendered gray level pixels) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

9. Applicant's arguments, see page 16, line 22 to page 17, line 3, filed 19 May 2004, have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., using the x,y coordinate to identify the physical location of the halftone dot and use the input value to extract the output value (which is not binary, and where no thresholding occurs; a 3-D dot; output value can be non-monotonic as density increases) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Despite Applicant's contention, said features are not specifically recited in claim 2. Claim 1, upon which claim 2 depends, specifically recites "associating each of the microdots within the tiles by a coordinate position as well as a density value" which is anticipated by Crean, as discussed in the arguments regarding claim 1 above.

10. Applicant's arguments, see page 17, line 4 to page 18, line 16, filed 19 May 2004, have been fully considered but they are not persuasive. As discussed above, Crean teaches grayscale halftoning with a plurality of levels, not simple binary halftoning (column 4, lines 44-48 and column 6, lines 9-11 of Crean). The limitations of claims 3-6 are clearly disclosed by Crean, as discussed above in the arguments regarding claims 3-6 on pages 4-5 of the present office action.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., 3-D extraction of an output value; 256 input halftone planes; input is a continuous tone image while the output has been halftone processed with halftone structure embedded in the image) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore, Crean does not define density value as "a thresholding value which is not the value to be represented as density of the micro-dots in the halftoning process," as Applicant asserts on page 17, lines 13-15 of Applicant's arguments, dated 19 May 2004. This definition is not found in the section cited by Applicant (column 7, lines 7-16 of Crean) or anywhere else in Crean. How does Applicant arrive at such a definition from said section of Crean?

Furthermore, regarding claims 5 and 6, the use of more bits increases the number of gray levels that can be created, as is well-known in the art. Higher addressability requires a higher number of bits, which creates a greater number of gray levels. The supposed difference that Applicant cites between the present application and Crean is interpretive, not structural. The invention taught by Crean performs the steps of the method disclosed in claims 5 and 6 as they are recited. Furthermore, "continuous tone image" still requires a fixed number of bits to be represented, as does the output halftone data.

11. Applicant's arguments, see page 18, lines 17-30, filed 19 May 2004, have been fully considered. As discussed above, Crean does indeed teach outputting gray level pixels. Crean does not disclose expressly a mixed-dot growth pattern, as recited in claim 7, or a partial dot growth pattern, as recited in claim 8. Therefore, the rejections of claim 7 and claim 8 under 35 U.S.C. §102 have been withdrawn. However, upon further consideration, new grounds of rejection are made in view of newly found prior art references.

12. Applicant's arguments, see page 19, lines 1-21, filed 19 May 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., 3-D LUT structure; 3-D halftoning) are not recited in the rejected claim(s).

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

As discussed repeatedly above, Crean does teach grayscale halftoning for a plurality of levels. Crean discloses all of the limitations recited in claims 9-13 as they are currently written.

13. Applicant's arguments, see page 19, line 22 to page 20, line 2, filed 19 May 2004, have been fully considered but they are not persuasive. Crean discloses the step of edge enhancement processing, as specifically recited in claim 14 and discussed above in the arguments regarding claim 14, on page 8 of the present office action. Applicant attempts to show a supposed difference between the present application and Crean, but does not demonstrate how claim 14, as currently written, patentably distinguishes over Crean.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., 3-D halftoning process; using blending technology so multiple halftone screens can be blended in the same pixel) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

14. Applicant's arguments, see page 20, lines 2-25, filed 19 May 2004, have been fully considered but they are not persuasive. Applicant is citing his interpretation based on the information in the specification. Applicant is not arguing the differences between claims 15 and 16, as currently written, and the cited prior art. Claim 15 as written specifically recites "[a]n image processing system for generating output gray level pixel values comprising: a lookup table storing output gray level pixel values representing rendered values of a halftoning process into one of a plurality of halftoning planes; and an input to the lookup table providing a coordinate value of a current pixel to be rendered and a gray level input image pixel to be rendered." Claim 16 as written specifically recites "[t]he image processing system of claim 15 wherein the coordinate value I is determined according to a calculation wherein I = (X+Y*Bs)%Bw, wherein X,Y represent an image pixel address, Bs represents a brick offset value used for establishing a start location for alternate repeats of a series or brick of rendering values for a predetermined gray level, Bw represents a brick width, and % identifies a calculation process wherein a division operation is provided and the remainder of the division operation is retained as the coordinate value." Claims 15 and 16 do not specifically recite the additional limitations Applicant is trying to argue.

Crean teaches the limitations of claims 15 and 16 as they are currently written, as discussed above in the related arguments.

15. Applicant's arguments, see page 20, line 26 to page 21, line 3, filed 19 May 2004, have been fully considered but they are not persuasive.

As discussed repeatedly above, Crean teaches gray scale halftoning, which provides grayscale output values for pixels. Therefore, grayscale values are stored, not simply binary pixels. The limitations recited in claim 17, as currently written, have been met by the teachings of Crean.

16. Applicant's arguments, see page 21, lines 4-24, filed 19 May 2004, have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., 3-D halftoning; 3-D structure) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant is again attempting to argue aspects of the specification and not the claims as they are currently written. The actual limitations of claims 18-21 are taught by Crean, as is discussed above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
August 2, 2004

THOMAS Q
TOMMY LEE
PRIMARY EXAMINER